ASHDOWN
SITE INVESTIGATION

IN SITU INFILTRATION TEST REPORT

BARN COTTAGE
CUCKFIELD ROAD
ANSTY
WEST SUSSEX

PROJECT REFERENCE: P17248

REPORT REFERENCE: R16753

Report Beneficiary: Adam Hollingdale

Document Control				
Issue No.	**Status**	**Issue Date**	**Notes**	
1	Final	25th June 2025		
Report Section			**Prepared By**	**Approved By**
In Situ Infiltration Test Report			Adam Cormack HNC FGS	Steven McSwiney BA mod Geol MSc FGS

Limitations

This report was prepared specifically for the Client's project and may not be appropriate to alternative schemes. The copyright for the report and licence for its use shall remain vested in Ashdown Site Investigation Limited (the Company) who disclaim all responsibility or liability (whether at common law or under the express or implied terms of the Contract between the Company and the Client) for any loss or damage of whatever nature in the event that this report is relied on by a third party, or is issued in circumstances or for projects for which it was not originally commissioned.

Head Office:
Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG

Telephone:
01273 483119
Email:
contact@ashdownsi.co.uk

Company Registration No.
242 6786

TABLE OF CONTENTS

FIGURES AND APPENDICES

1. INTRODUCTION

It is proposed to construct a two-storey dwelling with associated driveway at Barn Cottage, Cuckfield Road, Ansty, West Sussex. A copy of the proposed development layout is presented in the appendices to this report.

Ashdown Site Investigation Ltd was requested to undertake in situ infiltration testing to assist others with the design of a Sustainable Drainage Systems (SuDS) for the proposed development.

The specific objectives of the works were to:

a) Establish the expected geology, hydrogeology and hydrology at the site;
b) Investigate the shallow ground and groundwater conditions at the single test location; and
c) Undertake in situ infiltration testing to provide calculated infiltration rates to assist others with the design of soakaways.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q15351, dated 4th June 2025. The instruction to proceed was received from GTA Civils & Transport on behalf of the client, Adam Hollingdale.

2. SITE CONTEXT

2.1 Site Location

The site is located at Cuckfield Road, Ansty, West Sussex and is centred on the approximate Ordnance Survey national grid reference 529068, 123220. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

2.2 Geological Setting

2.2.1 Expected Geology and Aquifer Designation

The stratigraphic unit that may be expected to underlie the site has been established by reference to British Geological Survey (BGS) mapping and the BGS Lexicon of Named Rock Units. The expected stratigraphy is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Bedrock	Upper Tunbridge Wells Sand	Secondary A Aquifer

The Tunbridge Wells Sand Formation forms part of the Wealden Group. The formation is of Valanginian age (133.9 to 139.4 million years old; Early Cretaceous). The Tunbridge Wells Sand Formation predominantly comprises repeating sequences of fine to medium grained sandstone, siltstone and silty sand with finely-bedded mudstones and thin limestones. In the western High Weald (between Haywards Heath and Tunbridge Wells) the formation can be divided into three, the informally named Lower and Upper Tunbridge Wells Sand and the intervening Grinstead Clay Member. The succession commences with rhythmically bedded sandstones, siltstones and mudstones of the lower part of the Lower Tunbridge Wells Sand which pass up into the massive sandstones of the Ardingly Sandstone Member. These are overlain by the finely bedded mudstones, mudstones and silty mudstones with subordinate clay ironstones and shelly limestones of the Grinstead Clay Member. This clay member is itself locally divided into upper and lower parts by the cross-bedded fine sandstone of the Cuckfield Stone Bed. Above the Grinstead Clay Member, the Upper Tunbridge Wells Sand comprises a generally more argillaceous rhythmic succession, including mudstones, siltstones and silty sandstones. Outside the western High Weald the Grinstead Clay Member is not recognisable and the succession is mapped as undivided Tunbridge Wells Sand Formation. The formation is recorded by the BGS to range in thickness up to 122m.

2.2.2 Groundwater Source Protection Zones (SPZ)

The Environment Agency defines SPZs as those areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. SPZs are primarily a policy tool used to control activities close to water supplies intended for human consumption.

The site does not lie within a SPZ.

3. SITE WORKS

The intrusive site works comprised the excavation of a single hand dug trial pit, designated TP01, which was dug to an average depth of 1.21m below ground level. The intrusive work was carried out on the 13th June 2025. The location of the exploratory hole is shown on Figure 2.

Falling head soakage testing was undertaken in the trial pit in general accordance with the test methodology given by BRE guidance[1], other than the pit was filled only once rather than the three times suggested by the digest, due to the slow draining characteristics of the soils. The results of the testing along with the infiltration rate calculations are included in the appendices.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the appended exploratory hole record, together with explanatory notes to assist in their interpretation.

[1] Section 3.2.3 of Building Research Establishment (BRE) Digest 365, 2016.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 Surface Covering

A 200mm thick surface covering of topsoil was encountered at the surface of the exploratory hole.

4.1.2 Upper Tunbridge Wells Sand

Underlying the topsoil, the investigation generally progressed into slightly gravelly silty clay deposits which persisted to the full extent of the trial pit, averaging 1.21m below ground level. The gravel content comprised initially of siltstone to 0.50m depth, with mudstone and siltstone present below.

These deposits are considered to represent the Upper Tunbridge Wells Sand indicated to underlie the site on BGS geological maps.

4.2 Groundwater Conditions and Stability

The trial pit was recorded to be dry and stable during excavation.

It should be noted that water levels within the exploratory hole may not have equilibrated with the groundwater table at the time the readings were recorded and that groundwater levels should be expected to fluctuate seasonally.

5. STORMWATER INFILTRATION SYSTEMS

In-situ infiltration testing[2] was carried out in trial pit TP01. From the test results a calculation was made to determine the infiltration rate that could be expected for infiltration systems constructed into the underlying Upper Tunbridge Wells Sand soils.

During the test performed within trial pit TP01 the water level within the test pit only fell to 87% of the initial test depth, and as such the calculation of the soil infiltration rates in accordance with the BRE digest was not possible. The soil infiltration rate has therefore been calculated by dividing the volume of water lost during the test by the product of the average surface area of the trial pit in contact with water during the test period and the test duration in seconds.

The infiltration rate derived from the test is summarised in the following table.

Table 2. Calculated Infiltration Rate

Exploratory Hole	Top of Response Zone (m bgl)	Bottom of Response Zone (m bgl)*	Stratum	Infiltration Rate (f) (m/sec)
TP01	0.59	1.21	Upper Tunbridge Wells Sand	9.45×10^{-7}

Notes: *Average pit base depth

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system.

To comply with building regulations[3], point discharging infiltration systems (conventional ring or trench soakaways) are required to be constructed a minimum of 5.0m away from proposed or existing buildings.

The infiltration testing conducted in the trial pit is intended to provide calculated soil infiltration rates to assist in the preliminary design of infiltration systems at the site. However, it should be noted that Regulators/Local Authorities may require further testing to be undertaken at a later stage in accordance with the BRE365 guidance. This guidance states the testing should be carried out at the locations and depths of the proposed soakaways, which will not be known until preliminary drainage design has been undertaken.

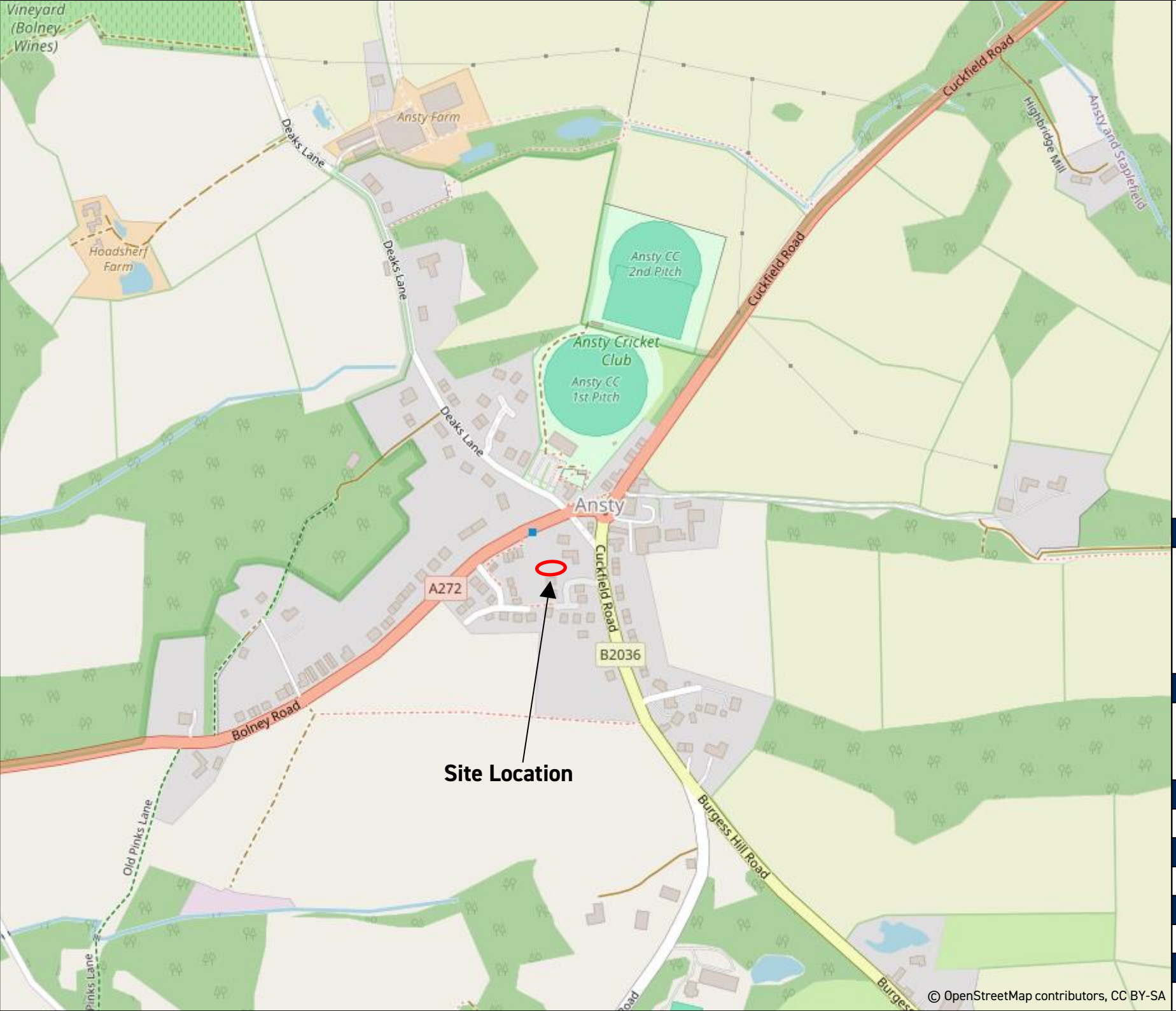
Monitoring of groundwater levels during the worst annual case (winter period) is often a requirement of Local Authorities and the BRE365 guidance suggests this should be undertaken prior to finalising design of infiltration systems.

In the event that discharge to ground via infiltration systems is proposed, it is recommended that designers of the system provide for the prevention of pollution of groundwater. In this regard due consideration should be given to guidance provided within BRE 365 and by the Environment Agency.

[2] Conducted in general accordance with the requirements of BRE 365, Soakaway Design.
[3] The Building Regulations 2010; Part H; Drainage and Waste Disposal

Appropriate consideration should also be given to whether there is a need for inclusion of interceptors and oil separators. The Local Authority and/or relevant water company should be consulted in relation to consent for discharge of water from rooftops, areas of hardstanding and roadways to drains.

FIGURES AND APPENDICES



N

ASHDOWN SITE INVESTIGATION

Head Office

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
contact@ashdownsi.co.uk

Site

Barn Cottage
Cuckfield Road
Ansty
West Sussex

Project Ref

P17248

Figure No

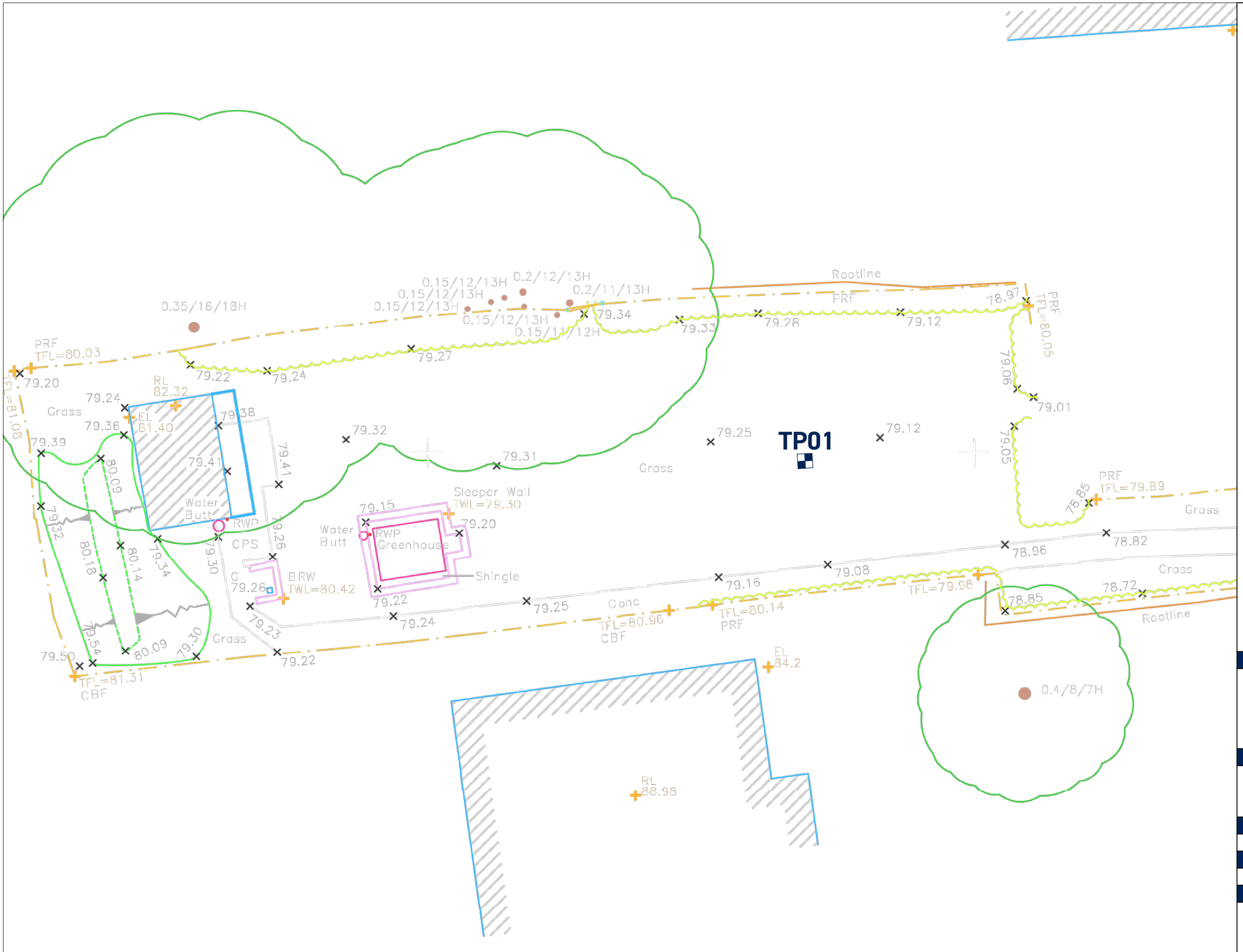
1

Drawing Title

Site Location Plan

Scale

Not To Scale



ASHDOWN SITE INVESTIGATION

Head Office

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
contact@ashdownsi.co.uk

Site

Barn Cottage
Cuckfield Road
Ansty
West Sussex

Project Ref

P17248

Figure No

2

Drawing Title

Site Plan

Scale

Not To Scale

Note :

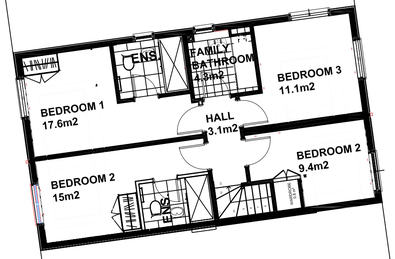
All drawings are based upon site information supplied by third parties and as such their accuracy cannot be guaranteed. All features are approximate and subject to clarification by a detailed topographical survey, statutory service enquiries and confirmation of the legal boundaries.

Do not scale the drawing. Use figured dimensions in all cases. Check all dimensions on site.

This drawing shows design intent only. For actual construction refer to sub contractors details.

CDM Regulations 2015
In accordance with CDM Regulations 9,(2), (3) & Appendix 1 Section 10, current drawings are to be read in conjunction with project information and associated design hazard information.

PROPOSED FIRST FLOOR PLAN



GROUND FLOOR GIA AREA = 65.8 m2
FIRST FLOOR GIA AREA = 65.8 m2
TOTAL GIA AREA = 131.6m2 (1418ft2)

BUILDING LINE FROM ADJACENT HOUSE

BUILDING LINE FROM ADJACENT HOUSE

BUILDING LINE FROM ADJACENT HOUSE

LIVING ROOM 23.8m2

KITCHEN 11.5m2

HALLWAY 12.5m2

DINING ROOM 14.3m2

Rear Garden

Driveway

3 Metre Entrance Road Width

ESS

8 CROUCH FIELDS

CROUCH FIELDS ESTATE

ICL=78.18
IL=77.74

ICL=78.35

ICL=77.09

ICL=77.20

NORTH

0m. 5m. 10m.

SCALE

PROPOSED SITE PLAN

Amendment

Status
FOR DISCUSSION

Project
BARN COTTAGE, ANSTY RH17 6AG
PROPOSED NEW SINGLE DWELLING

Drawing
SITE PLAN

Project No.	Drawing No.	
PA058	**P10-R3**	
Scale at A1	Drawn By	Checked By
1:100	**MRA**	**PA**

PLACES architects
Lone Oak, Broad Street, Cuckfield, West Sussex
RH17 5DX
T: 01444 682110 | **M:** 07793 416687
E: mavery@placesarchitects.co.uk

EXPLANATORY NOTES

Symbols and abbreviations on Exploratory Hole Records

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
L	Liner sample cut to length indicated.
D	Disturbed Sample
B	Bulk Disturbed Sample
W	Water Sample
ES	Environmental Suite (on older records may be referenced J T)

In Situ Testing

SPT	Standard penetration test (SPT): Using the split spoon sampler.
SPT(C)	Standard Penetration Test (SPT): Using a solid cone instead of the sampler – conducted usually in coarse grained soils or weak rocks.
HV	Shear Vane Test: Undrained shear strength (cohesion).
PP	Hand penetrometer Test: Undrained shear strength (cohesion).
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under remarks section.

Excavation Method

CP	Cable Percussion Borehole
RC/RO	Rotary Cored Borehole/Rotary Open Hole Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HP	Trial Pit excavated using hand tools
HA	Hand Auger borehole

Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

In Situ Strength Testing (where undertaken)

Standard penetration testing (SPT) carried out in accordance with BS EN ISO 22476-3:2005.

Continuous dynamic probe testing conducted using a super heavy DPSH-B (As defined by BS EN ISO 22476-2:2005) probing geometry. The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

Perth penetrometer tests carried out in accordance with Australian Standard AS 1289:6.3.3-1997, Method of Testing Soils for Engineering Purposes; no equivalent European or British Standard having been published to date.

Undrained shear strength determinations made in-situ using a Geonor hand shear vane or a hand penetrometer.

Testing to determine the in-situ California Bearing Ratio (CBR) of soils conducted at shallow depths using a hand-held Transport Research Laboratory (TRL) cone penetrometer.

Hand Pit

TP01

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
HP				1:25

Project Name	Project No.	Start Date	End Date
Barn Cottage, Cuckfield Road, Ansty, West Sussex	P17248	2025-06-13	2025-06-13

Client | **Consultant** | **Contractor**

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.20) 0.20		Topsoil with rare gravel of flint and charcoal-like material.
		0.40	D			(0.30) 0.50		Light brown and brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse siltstone. [Upper Tunbridge Wells Sand]
		1.10	D			(0.71) 1.21		Light brown, orange brown and grey mottled slightly gravelly silty CLAY with occasional iron staining. Gravel is subangular to subrounded fine to coarse siltstone and mudstone. [Upper Tunbridge Wells Sand]
								End of Trial Pit at 1.21m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks
Trial pit dry on completion.

Method, Plant, Stability, Dimensions
0.00 - 1.21m HP
Trial pit stable on completion.
L = 1.03m
W = 0.32m

Logger
GRD

TRIAL PIT INFILTRATION TEST RESULTS

Site: Barn Cottage, Cuckfield Road, Ansty, West Sussex **Project Ref:** P17248

Test Location Reference	**TP01**
Test Number	**1**

Width of Pit	0.32 m	W
Length of Pit	1.03 m	L
Depth of Pit	1.21 m	D
Pit type	Open	

Volume of water introduced into pit	0.203	m^3	
Initial head of water	0.62	m	h_o
Water level at start of test	0.59	m	
Water level at end of test	0.67	m	
Volume of water discharged from pit	0.026	m^3	
Duration of test	247	min	
Average soaked surface area	1.88	m^2	
Time for water level to fall to 75% of initial head	Not reached	min	t_{p75}
Time for water level to fall to 25% of initial head	Not reached	min	t_{p25}
Depth to water at 75% of initial head	Not reached	m	d_{75}
Depth to water at 25% of initial head	Not reached	m	d_{25}
Time for the water level to fall from 75% to 25% of initial head	Not reached	min	t_{p75-25}
Effective storage volume of water in the soakage trial pit between 75% and 25% of initial head	Not reached	m^3	V_{p75-25}
Internal surface area of the soakage trial pit up to 50% of initial head and including the base area	1.16	m^2	a_{s50}

Infiltration rate **9.45E-07 m/sec** **f**

Calculation method: The water level did not fall below 25% of the effective storage depth. 'f' has been calculated by dividing the volume of water lost during the test by the product of the average surface area in contact with water during the test and the test duration.